THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. An assembly for positioning a sleeve down hole in a hydrocarbon producing well, comprising:

a sleeve having an interior surface, an exterior surface, a first end, a second end, and seals on the exterior surface of the sleeve, the sleeve being made of a material which is capable of expanding radially when pressure is applied to the interior surface;

a running tool support rod extending axially through the sleeve, the support rod having a first end, a second end, an exterior surface;

a first seal assembly positioned at the first end of the sleeve, the first seal assembly having more than one annular seal, each annular seal engaging the exterior surface of the support rod and the interior surface of sleeve;

a second seal assembly positioned at the second end of the sleeve, the second seal assembly having more than one annular seal, each annular seal engaging the exterior surface of the support rod and the interior surface of sleeve;

a first centralizer positioned at the first end of the sleeve, adapted to centralize the first end of the sleeve;

a second centralizer positioned at the second end of the sleeve, adapted to centralize the second end of the sleeve;

means for preventing an outermost seal of the second seal assembly from exiting the sleeve until the sleeve has been fully expanded and a preset pressure threshold has been reached;

a fluid conduit extending through the support rod to a fluid feed inlet positioned between the first seal assembly and the second seal assembly; and

means for selectively sending fluid through the fluid conduit to expand the sleeve by remote activation.

2. The assembly as defined in Claim 1, wherein the first centralizer and the second centralizer have circumferentially

spaced rollers.

3. The assembly as defined in Claim 1, wherein the means for preventing the outermost seal of the second seal assembly from exiting the sleeve until the sleeve has been fully expanded and a preset pressure threshold has been reached is a shear sleeve secured to the support rod by shear screws adapted to shear when the preset pressure threshold is reached.

4. The assembly as defined in Claim 1, wherein the means for selectively expanding the sleeve includes means for generating pressure by expansion of gases.

5. The assembly as defined in Claim 4, wherein a combustion chamber is provided for the combustion of a gas generating medium, whereby pressure is generated by expansion of gases.

6. The assembly as defined in Claim 1, wherein the means for selectively expanding the sleeve includes filling the sleeve with a liquid, and having a fluid chamber filled with liquid in fluid communication with the sleeve, the fluid chamber having a first end and a second end, a piston is provided which has a first face and a second face, the piston being positioned at the first end of the fluid chamber remote from the sleeve, the piston being axially movable in the fluid chamber when a force acts upon the first face of the piston, as the piston moves toward the second end of the fluid chamber the second face of the piston exerts a hydraulic force upon liquid to expand the sleeve.

7. The assembly as defined in Claim 6, a restriction being positioned at the second end of the fluid chamber, the movement of the piston being hydraulically slowed as the piston enters the restriction, thereby preventing the first seal assembly being exposed to impact damage from the piston.

8. The assembly as defined in Claim 6, wherein an expansion chamber is provided to accommodate rapidly expanding gases and the first face of the piston is exposed to rapidly expanding gases in the expansion chamber, the rapidly expanding gases serving as a motive force to move the piston toward the second end of the fluid chamber.

9. The assembly as defined in Claim 5, wherein an electric igniter element is provided in the combustion chamber and an electrical conduit extends from surface to facilitate remotely igniting the gas generating medium by sending an electrical current from surface to the electric igniter element.

10. The assembly as defined in Claim 8, wherein a bleed valve is provided to relieve pressure within the expansion chamber.

11. The assembly as defined in Claim 1, wherein the first seal assembly and the second seal assembly include at least one inner resilient seal axially spaced from at least one outer high pressure seal.

12. The assembly as defined in Claim 1, wherein a stopper nut is positioned on a lower remote end of the support rod below the shear sleeve.

13. The assembly as defined in Claim 11, wherein the at least one outer high pressure seal is carried by at least one seal carrier sleeve.

14. The assembly as defined in Claim 1, wherein stabilizing slips are provided, the slips being forced outwardly to secure the running tool in the well bore by hydraulic pressure within the fluid chamber.

15. The assembly as defined in Claim 1, wherein the first seal assembly includes an expandable annular primary seal and

an annular primary seal activation member having a primary face with an inclined plane profile, an increase in internal pressure upon activation of the assembly directing the primary seal up the inclined plane profile of the primary seal activation member, the primary seal expanding in circumference as it climbs the inclined plane profile and comes into sealing engagement with the sleeve.

16. The assembly as defined in Claim 15, wherein the primary seal activation member has a secondary face which is opposed to the primary face, the secondary face also having an inclined plane profile, the primary seal activation member being axially movable along the support rod in response to increases in internal pressure upon activation of the assembly, an annular secondary seal activation member being provided having an inclined plane profile, the secondary seal activation member being fixed in position to the support rod, a secondary seal being positioned between the primary seal activation member and the secondary seal activation member, the secondary seal having a plurality of sealing segments arranged around the circumference of the support rod, each of the sealing segments having an outwardly angled first end and an outwardly angled second end, upon movement of the primary seal activation member along the support rod toward the secondary seal activation member, the secondary seal being sandwiched between the primary seal activation member and the secondary seal activation member with the sealing segments being forced outwardly as the outwardly angled first end is forced up the inclined plane profile on the secondary face of the primary seal activation member and of the outwardly angled second end is forced up the inclined plane profile of the secondary seal activation member, means being provided to urge the sealing segments of the secondary seal back into engagement with the support rod.

17. The seal assembly as defined in Claim 16, wherein an

expandable resilient band encircles the sealing segments of the secondary seal and pulls the sealing segments back into engagement with the support rod.

18. The seal assembly as defined in Claim 16, wherein springs are positioned on an exterior surface of each of the sealing elements around the circumference of the secondary seal, the springs pushing the sealing segments of the secondary seal back into engagement with the support rod.

19. An assembly for positioning a sleeve down hole in a hydrocarbon producing well, comprising:

a sleeve having an interior surface, an exterior surface, a first end and a second end, and seals on the exterior surface of the sleeve, the sleeve being made of a material which is capable of expanding radially when pressure is applied to the interior surface;

a running tool including a running tool support rod extending axially through the sleeve, the support rod having a first end, a second end, and an exterior surface;

a first seal assembly positioned at the first end of the sleeve, the first seal assembly having more than one annular seal, each annular seal engaging the exterior surface of the support rod and the interior surface of sleeve;

a second seal assembly positioned at the second end of the sleeve, the second seal assembly having more than one annular seal, each annular seal engaging the exterior surface of the support rod and the interior surface of sleeve;

a first centralizer positioned at the first end of the sleeve, adapted to centralize the first end of the sleeve;

a second centralizer positioned at the second end of the sleeve, adapted to centralize the second end of the sleeve;

a shear sleeve is secured to the support rod by shear screws, preventing an outermost seal of the second seal assembly from exiting the sleeve until the sleeve has been fully expanded, the shear screws being adapted to shear when a preset pressure threshold is reached;

a combustion chamber for the combustion of a gas generating medium;

an electric igniter element in the combustion chamber and an electrical conduit extends from surface to facilitate remotely igniting the gas generating medium by sending an electrical current from surface to the electric igniter element;

an expansion chamber is provided adjacent to the combustion chamber, to accommodate rapidly expanding gases generated by the combustion of the gas generating medium in

the combustion chamber;

a fluid chamber filled with liquid in fluid communication with the sleeve which is also filled with liquid, the fluid chamber having a first end and a second end;

a fluid conduit extending axially through the support rod from the second end of the fluid chamber to a feed inlet positioned between the first seal assembly and the second seal assembly;

a piston having a first face and a second face, the piston being positioned at the first end of the fluid chamber remote from the sleeve, the piston being axially movable in the fluid chamber when a force acts upon the first face of the piston, the first face of the piston being exposed to rapidly expanding gases in the expansion chamber, the rapidly expanding gases serving as a motive force to move the piston toward the second end of the fluid chamber, thereby exerting a hydraulic force upon liquid to expand the sleeve.

20. The assembly as defined in Claim 19, a restriction being positioned at the second end of the fluid chamber, the movement of the piston being hydraulically slowed as the piston enters the restriction, thereby preventing the first seal assembly being exposed to impact damage from the piston.

21. The assembly as defined in Claim 19, wherein the first centralizer and the second centralizer have circumferentially spaced rollers.

22. The assembly as defined in Claim 19, wherein a bleed valve is provided to relieve pressure exerted within the expansion chamber.

23. The assembly as defined in Claim 19, wherein the first seal assembly and the second seal assembly include at least one inner resilient seal axially spaced from at least one outer high pressure seal.

24. The assembly as defined in Claim 19, wherein a stopper nut is positioned on a lower remote end of the support rod below the shear sleeve.

25. The assembly as defined in Claim 23, wherein the at least one outer high pressure seal is carried by at least one seal carrier sleeve.

26. The assembly as defined in Claim 19, wherein stabilizing slips are provided, the slips being forced outwardly to secure the running tool in the well bore by hydraulic pressure within the fluid chamber, during the setting operation, the slips releasing and disengaging when pressure is relieved upon the shear screws failing.

27. The assembly as defined in Claim 19, wherein circumferential seals are provided on the exterior surface of the sleeve.

28. A method for positioning sleeve down hole in a hydrocarbon producing well, comprising the steps of:

running a running assembly with associated sleeve down a hydrocarbon producing well until the sleeve is in a desired positioned in a conduit, the running assembly including a first seal assembly sealing a first end of the sleeve and a second seal assembly sealing a second end of the sleeve, the first seal assembly and the second seal assembly having seals adapted to sequentially fail to expand the first end and the second end of the sleeve and to permit the second seal assembly to exit the second end of the sleeve and release the pressure when a preset threshold is reached;

expanding the sleeve until the sleeve sealingly engages the conduit;

maintaining pressure within the sleeve as the seals of the first seal assembly and the second seal assembly sequentially fail to expand the first end and the second end of the sleeve and until the preset threshold is reached, at which threshold pressure the second seal assembly exits the second end of the sleeve to relieve the pressure; and

pulling the running assembly back through the expanded sleeve to surface, the expanded sleeve providing sufficient internal clearance that a further sleeve of the same size as the original may, in future, be passed through the expanded sleeve and positioned lower down in the well.

29. A method for positioning sleeve down hole in a hydrocarbon producing well, comprising the steps of:

providing a running assembly which includes:

a sleeve having an interior surface, an exterior surface, a first end and a second end, and seals on the exterior surface of the sleeve, the sleeve being made of a material which is capable of expanding radially when pressure is applied to the interior surface;

a running tool support rod extending axially through the sleeve, the support rod having a first end, a second end, and an exterior surface;

a first seal assembly positioned at the first end of the sleeve, the first seal assembly having more than one annular seal, each annular seal engaging the exterior surface of the support rod and the interior surface of sleeve;

a second seal assembly positioned at the second end of the sleeve, the second seal assembly having more than one annular seal, each annular seal engaging the exterior surface of the support rod and the interior surface of sleeve;

a first centralizer positioned at the first end of the sleeve, adapted to centralize the first end of the sleeve;

a second centralizer positioned at the second end of the sleeve, adapted to centralize the second end of the sleeve;

means for preventing outermost seals of the more than one seals of each of the first seal assembly and the second seal assembly from exiting the sleeve until the sleeve has been fully expanded and a preset pressure threshold has been reached;

a fluid conduit extending through the support rod to a fluid feed inlet positioned between the first seal assembly and the second seal assembly; and

means for selectively sending fluid through the fluid conduit to expand the sleeve by remote activation.

running the assembly down a hydrocarbon producing well until the sleeve is positioned within a conduit;

expanding the sleeve until the sleeve sealingly engages the conduit;

maintaining pressure within the sleeve as the seals of the first seal assembly and the second seal assembly sequentially fail to expand the first end and the second end of the sleeve and until a preset threshold is reached, at which threshold pressure the second seal assembly exits the second end of the sleeve;

pulling the support rod back through the expanded sleeve and back to surface, the expanded sleeve providing sufficient internal clearance that a further sleeve of the same size as the original may in future be passed through the expanded sleeve and positioned lower down in the well.

30. The method as defined in Claim 29, a shear sleeve being secured to the support rod by shear screws to prevent an outermost seal of the more than one seals of the second seal assembly from exiting the sleeve until the sleeve has been fully expanded, the shear screws being adapted to shear when a preset pressure threshold is reached.

31. The method as defined in Claim 29, a combustion chamber being provided for the combustion of a gas generating medium;

an electric igniter element being provided in the combustion chamber and an electrical conduit extending from surface to facilitate remotely igniting the gas generating medium by sending an electrical current from surface to the electric igniter element;

an expansion chamber being provided adjacent to the combustion chamber, to accommodate rapidly expanding gases generated by the combustion of the gas generating medium in the combustion chamber;

a fluid chamber filled with liquid being in fluid communication with the sleeve which is also filled with liquid, the fluid chamber having a first end and a second end;

a fluid conduit extending axially through the support

rod from the second end of the fluid chamber to a feed inlet positioned between the first seal assembly and the second seal assembly;

a piston having a first face and a second face, the piston being positioned at the first end of the fluid chamber remote from the sleeve, the piston being axially movable in the fluid chamber when a force acts upon the first face of the piston, the first face of the piston being exposed to rapidly expanding gases in the expansion chamber, the rapidly expanding gases serving as a motive force to move the piston toward the second end of the fluid chamber, thereby exerting a hydraulic force upon liquid to expand the sleeve.